HiFi-Stereo-Cassettenrecorder
HiFi-Stereo Cassette Deck
Magnétophone à cassettes HiFi stéréo

C4

Bedienungsanleitung
Operating instructions
Instructions d'utilisation

BRAUN

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Transportsicherung

Der ausfahrbare Cassettenwagen ist durch zwei Schrauben (auf der Unterseite des Gerätes) für den Transport gesichert. Sie müssen vor der Aufstellung des Gerätes herausgedreht und vor einem späteren Transport bei eingefahrenem Cassettenwagen wieder hineingeschraubt werden.

Transportation protection screws

The sliding cassette compartment is secured during transport by two screws on the underside of the unit. These must be removed before using the cassette deck and should be used for transportation at a later date.

Vis de transport

Le tiroir-cassette mobile est immobilisé pendant le transport par deux vis de sécurité qui se trouvent sous l'appareil. Les deux vis doivent être déposées avant la première mise en service de l'appareil. En cas de transport ultérieur, remonter les vis.

Aufstellen

Der HiFi-Cassettenrecorder C4 paßt zu den übrigen Bausteinen der atelier-Anlage. Bei der Anordnung der Geräte übereinander sollten Sie den C4 unterhalb des Verstärkers/Receivers aufstellen. Nachdem Sie alle Kabelverbindungen hergestellt haben, hängen Sie die rückwärtige Abdeckklappe ein.

Hinweis: Im Karton befindent sich neben dem Gerät
- die Abdeckklappe
- Tonkabel
- Bedienungsanleitung
- Technische Information
- Garantiekarte

Installation

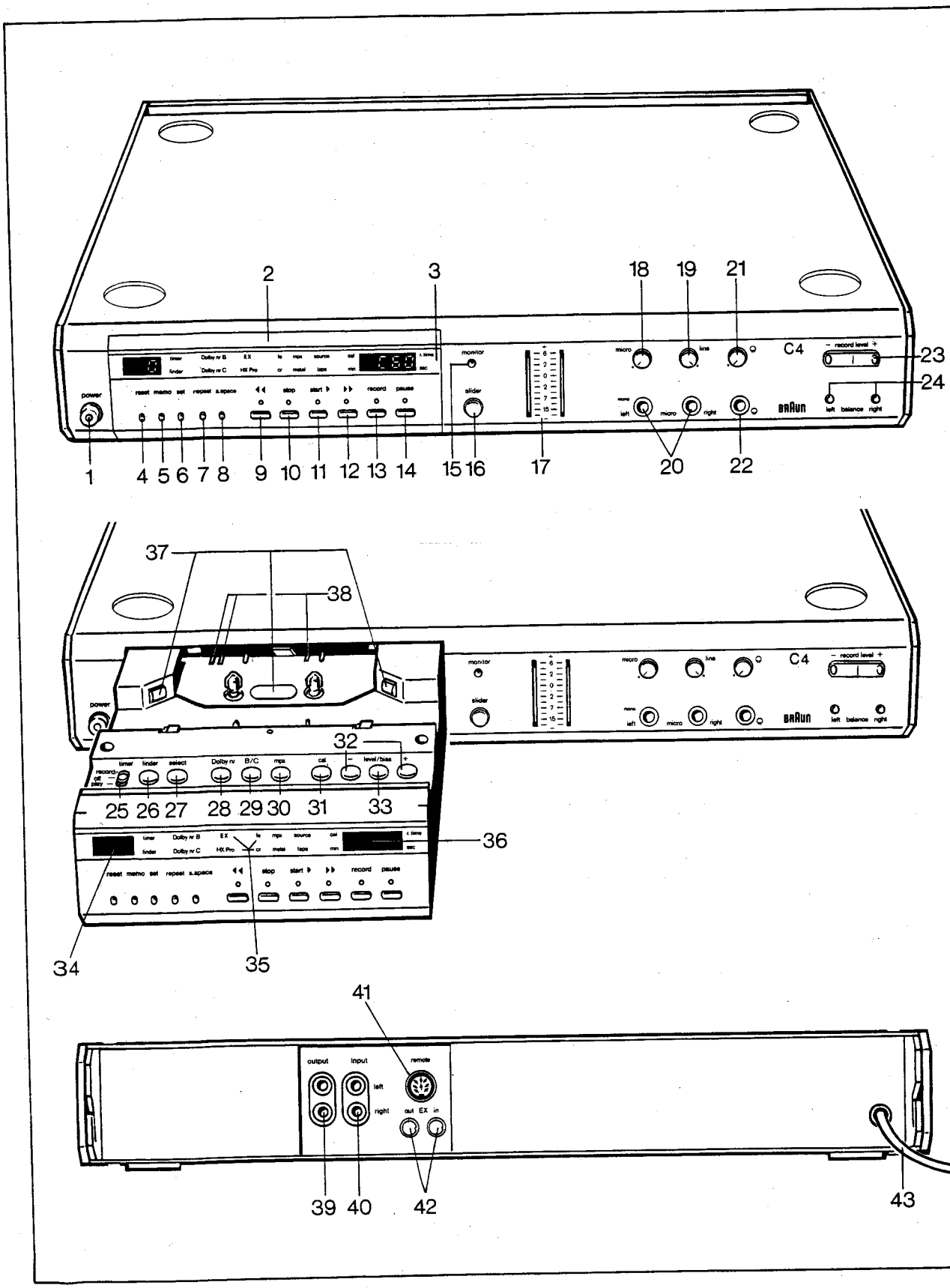
The C4 HiFi cassette deck is compatible with other components in the atelier system. In vertical configurations the C4 should be placed below the amplifier/receiver. Connect the cables before attaching the back cover.

NB: In the carton you will find with the cassette deck
- the back cover
- connecting cables
- operating instructions
- technical information
- guarantee card.

Installation

La platine-cassette HiFi C4 est compatible avec les éléments déjà existants de la série studio. Si vous avez choisi d'empiler les appareils, placez la C4 en dessous de l'ampli-tuner. Après raccordement de tous les câbles, montez le cache arrière.

Note: En plus de l'appareil, le carton contient:
- le cache
- les câbles de raccordement
- les instructions d'utilisation
- des renseignements techniques
- la carte de garantie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Controls, displays, connections and their functions

1 »power«
This push button switches the unit on and off. On switching off, the unit stores the latest control settings for two weeks.

2 cassette slider
This is moved in and out by pressing the »slider« button.

3 display
In addition to the tape counter and time display, the word displays indicate the activated functions.

4 »reset«
This resets the tape counter to zero.

5 »memo« button with LED
When activated »memo« stops tape rewind at zero or any value selected and is stored using »set«.

6 »set« button with LED
Simultaneously pressing »memo« and »set« stores the current tape counter setting. The tape will stop at this point on rewinding.

7 »repeat« button with LED
This switches to continuous »repeat« of the entire cassette or a selected portion of the cassette.

8 »a.space« button with LED
In »record« »pause« mode (after recording an item), pressing this button records a 3 second blank space. This makes it easier to locate the start of an item (»music«- or »index«-finder).

9 » ◀◀ « and **12** » ▶▶ « buttons with LEDs
Fast forward and reverse. These functions can only be cancelled with »stop« or »start ▶ «.

10 »stop« button with LED
Stops all tape movement functions and tape calibration and cancels record mode.

11 »start ▶ « button with LED
Starts tape movement or playback.

13 »record« button with LED
This puts the unit in record status with the cassette halted in »pause« mode. To start recording, press »start ▶ «.

14 »pause« button with LED
This interrupts tape movement, which can be restarted by pressing »start ▶ «.

15 »monitor«
with display »source«/»tape«
Pressing this button during recording toggles between the source being recorded and the recording itself. The display shows »source« or »tape«.

16 »slider«
Pressing this button moves the cassette compartment in or out.

17 Level display
Use this peak level indicator to set recording levels. The playback level is displayed during record monitor mode and during calibration mode.

18 »micro«
Dual level control with push to recess knob for microphone input, mixer for microphone and line inputs.

19 »line«
Dual level control with push to recess knob for line input, mixer for line and microphone inputs.

20 »left micro right« jacks
Input jacks for connecting a stereo or mono microphone (impedance: 200 - 1000 ohm).

21 » 🎧 «
Dual control with push to recess knob for setting headphones volume.

22 » 🎧 « jack
For connecting stereo headphones (nominal impedance: 200 - 2000 ohm).

23 » — record level + «
Rocker bar for general recording level in 1 dB steps from 0-79. » — « reduces the level, » + « increases it. Changing the setting is only possible in »record« and »record« »pause« modes. Quickly depressing will recall the current setting in the 4-digit display for 3 sec. e.g. **L65.**

24 »left balance right«
These buttons set the balance in 1 dB steps over a 10 dB range by attenuation of the respective channel. Changing the setting is only possible in »record« and »record« »pause« mode. Quickly pressing will recall the current setting in the 4-digit display for 3 sec. e.g. **10**-- (max. left), **----** (center), **--10** (max. right).

25 »timer« with word display
Slide switch to control the C4 with an external timer.

26 »finder« with word display
In »start ▶ « mode with »finder« activated, pressing » ▶▶ « or » ◀◀ « advances the tape to the next »a.space« between items. The number of items to be skipped can be selected by pressing the forward or reverse buttons for the corresponding number of times.

27 »select«
Sequence switch button for setting total playing time of inserted cassette and toggling between remaining and lapsed playing time.

28 »Dolby nr« with word display
To activate one of the integrated Dolby noise reduction systems or a noise reduction system connected to the »out EX in« jacks.

29 »B/C« with word display
This toggles between the two integrated »Dolby nr B« and »Dolby nr C« systems.

30 »mpx« with word display
Activates a 15 kHz low pass filter to prevent possible problems with stereo reception from tuners. »mpx« is not required with atelier components.

31 »cal« with word display
Pressing this together with »start ▶ « initiates calibration mode for the inserted cassette. The LED »cal« blinks. »cal« is also used to toggle between manual and IEC tape type calibration.

32 » — « » + «
Buttons for setting level and bias during tape calibration.

33 »level/bias«
Toggle for the two parameters in tape calibration mode.

34 Three-digit tape counter display

35 Word display
Indicates the fuctions activated by the buttons. »HXPro« shows that this system is activated to optimise high frequency recording.

36 Four-digit digital display
Displays the selected playing time of the inserted cassette, the elapsed or remaining playing time (calculated independently from tape counter) and control settings.

37 Cassette compartment light
For visual check on tape winding.

38 Sensor for recording protection and automatic tape type selection.

Controls at rear

39 »output«
Two jacks for connection to the »tape in« inputs on the amplifier/receiver.

40 »input«
Two jacks for connection to the »tape out« outputs on the amplifier/receiver.

41 »remote«
Jack for remote operation, e.g. with one of the »tape remote« jacks on receiver R4.

42 »out EX in«
Jacks for connecting an external noise reduction system. The input from this unit is connected with »out EX«, the output with »EX in«.

43 Mains cord

Brief instructions

This brief instruction contains the essential information on the basic functions of the C4 for users who only wish to use the basic functions. In case of doubt, refer to the detailed instructions which also include advanced functions not covered in this section.

Installation

• Mains connection: insert the plug on **mains cord** (42) in 220V/50 Hz outlet. The C4 is preset for 220V. The deck has been set in the factory for 220 V operation (AC only). Conversion to 110, 120 or 240 V operation is possible but should only be carried out by a specialist.

• Connecting **audio cables:** connect the **»output«** (38) jacks on the C4 with the »tape in« jacks on the amplifier and the **»input«** (39) jacks on the C4 with the »tape out« jacks on the amplifier.

Playback

To switch on cassette deck:
• Press **»power«** (1) button: the LED »stop« lights up.

To slide out the cassette compartment:
• Press **»slider«** (16) button.

• Insert cassette. The C4 will automatically select the right tape type.

To set playing time:
• Press **»select«** button until the display (C60, C90 or LC46) matches the cassette inserted.

To select Dolby noise reduction:
• Press **»Dolby nr«** (28) and **»B/C«** (29) buttons. Display: e.g. »Dolby nr C«.

To retract cassette compartment:
• Press **»slider«** (16) button.

To start playback:
• Press **»start ▶ «** (11) button.

Fast forward/fast reverse:
• Press » ▶▶ « (12) or » ◀◀ « (9).

To find individual items
(in case there are spaces between the items):
• Press **»finder«** (26),
• Press **»start ▶ «** (11) or **»pause«** (14),
• Press » ▶▶ « (12) or » ◀◀ « (9), repeatedly until the desired item is found.
• Pressing **»finder«** (26) cancels this function.

To stop playback:
• Press **»stop«** (10) button. The unit automatically switches to »stop« at the end of the cassette.

To slide out cassette compartment:
• Press **»slider«** (16) button. The cassette can be removed.
NB: Only remove the cassette when the unit is in »stop« mode (LED »stop« is lit!).

Recording

After you have inserted the cassette and have selcted the desired Dolby system you can record by taking the following steps:

• Press **»record«** (13) button. The LED »start ▶ « (11) blinks to indicate that the unit is ready to record.

To set recording level:
Recording from the line inputs:
Make sure that the **»line«** (19) and **»micro«** (18) controls are in their normal position i.e. the knob mark points to the dot on the front panel and use the rocker bar **» — record level + «** to set the recording level so that not more than two red diodes on the level indicator (17) light up during the loudest passages.

To start recording:
• Press **»start ▶ «** (10) button. The »start ▶ « and »record« LEDs light up. Display: remaining playing time. Switching to elapsed playing time after **»select«** is pressed.

To monitor recording:
• Press **»monitor«** (15) button. »source« is selected and then »tape« (monitor).

To insert spaces in recording:
• Press the **»a.space«** (8) button to set spaces at the end of individual items. This facilitates location on playback and allows operation of music and index finder.

To stop recording:
• Press **»stop«** (10) button. The unit automatically switches to »stop« at the end of the cassette.

Detailed instructions

Connection

Mains connection
Before plugging the unit into the mains outlet, ensure that the local supply voltage corresponds to the preset voltage on your C4. The deck has been set in the factory for 220 V operation (AC only). Conversion to 110, 120 or 240 V operation is possible but should be carried out by a specialist.

Connection to amplifier
Use the enclosed audio cables to connect the »output« (39) jacks on the rear of the C4 to the tape input (e.g. »tape in«) and the »input« (40) jacks on the C4 with the tape output (e.g. »tape out«) of the amplifier or receiver. Use the cable with the red marking at the plug for the right channel, the cable with the black marking for the left channel. Store excess cable in loops at the rear of the C4 and then shut the rear cover.

Remote control
The C4 can be remote controlled when it is connected to an appropriate atelier control unit, e.g. Receiver R4. Use the control cable (8-pole plug, concentric contact configuration) to connect the »remote« jack on the C4 with the corresponding »tape remote« jack on the receiver.

Buttons with the same designation on C4 and on the remote control transmitter RC1 have identical functions. Pressing the » ▶▶ « or the » ◀◀ « enables the setting of the record level in 1 dB steps in »record« or »record« »pause« mode.

Connecting headphones
Stereo headphones with 30-2000 ohm nominal impedance can be connected to the » 🎧 « jack. The volume can be adjusted using the » 🎧 « push to release knob above the jack. Headphones are particularly recommended for monitoring microphone recordings.

General notes on operation

Switch on deck
Switch on the cassette deck by pressing the »**power**« button. The LED above the »stop« button lights up.

Slide out cassette compartment
Press the »**slider**« button. The cassette compartment moves out. If this does not happen, switch off the deck and remove the transportation protection screws.

Inserting the cassette
Before inserting a cassette, check the tape. There should be no loops. Tighten the tape by inserting e.g. a ballpoint pen in one of the two drive holes and turn until the tape is taut.

Insert the cassette with the opening where the tape is visible facing towards you at a slight angle and then press lightly from above on the front part of the cassette until you hear it click into the cassette compartment.

Set the tape counter to zero with the »**reset**« button and set the tape playing time for the inserted cassette (C60, C90 or LC46) using the »**select**« button.

Tape types
A range of different types of tape are available. The cassette deck is set for the following three **IEC standard tapes**: IEC I/Fe/iron oxide; IEC II/CrO_2/chrome dioxide and IEC IV/metal. When the cassette is inserted, the C4 is automatically set to the appropriate tape type.

Noise reduction
The C4 cassette deck has two noise reduction systems (»Dolby nr B« and »Dolby nr C«) built in. You can also connect an external noise reduction unit to the jacks »out EX in«.

Cassettes recorded with a specific noise reduction system must be played back with the same system. The system used for recording is shown on commercial cassettes.

With the Dolby systems, high frequencies are recorded at very increased levels during soft passages and correspondingly reduced in playback. This also reduces tape noise which is particularly disturbing in this frequency range. Music with a high level should always be recorded with »Dolby nr C«. Use »Dolby nr B« or no noise reduction at all only for compatibility with older and simpler units.

Select the appropriate noise reduction system by pressing »**Dolby nr**« and »**B/C**«.

HX Pro
(HX Pro headroom extension)
This circuit gives dynamic optimisation of the high frequency recording by controlling the bias and is integrated in the recording section of the C4. »HX Pro« is shown in the display.

Retract cassette compartment
It is possible to record and play while the cassette compartment is moved out.

Nevertheless, it is advisable to retract the compartment by pressing the »**slider**« button to protect the cassette and tape heads from dust.

Tape movement
The tape movement controls are designed for convenience and error-free use. It is possible to switch direction or switch to playback directly from forward or reverse movement without pressing the »stop« button.

While recording, forward or reverse can only be activated after »stop« has been pushed. This prevents accidental interruption of a recording.

If you switch from playback to fast forward or reverse with the »finder« function activated, the tape will stop at points where a space has been inserted with the »a.space« during recording.

Forward or reverse movement is also interrupted at points which have been marked for repetition with the »memo« and »set« or »memo« and »reset« buttons.

For uninterrupted forward or reverse movement, deactivate »finder« and »memo« (the relevant displays will be off).

Playback

Starting playback
Press the »**start** ▶« button to start playback. After a brief interval the display will show the remaining playing time in minutes and seconds. Display: e.g. »min 44:55 sec« »r.time«. Use the »**select**« button to toggle between this and elapsed playing time. Display: e.g. »min 0:10 sec«. The tape counter shows the length of tape already played.

Interrupting playback
Press the »**pause**« button to interrupt playback. The »pause« LED lights up and the »start ▶« LED blinks. To resume playback, press »**start** ▶« again.

Stopping playback
Press the »**stop**« button to stop playback. The cassette can be removed after sliding out the compartment by pressing »**slider**«. The deck automatically switches to »stop« at the end of the tape.

If you want to stop playback and start recording, press »**record**«. The deck switches to »record« »pause« mode. Press »**start** ▶« to start recording.

NB: Only remove the cassette when the deck is in »stop« mode. Failure to do so could result in damage to the tape heads.

Playback using search (music »finder«)
If spaces have been placed between musical items during recording by using the »a.space« button, you can use the integrated music search function to locate individual items rapidly during playback.

With cassettes recorded in this way, switch to playback by pressing »**start** ▶« and use »**finder**« to activate the music search function.

Pressing » ▶▶ « will interrupt playback, advance the tape in fast forward mode to **the beginning of the next item** and resume playback at this point. Similarly pressing » ◀◀ « will reverse the tape in fast reverse mode to **the beginning of the current item** and resume playback.

Repeated pressing of » ▶▶ « or » ◀◀ « enables you to skip the corresponding number of items (15 times max.) in fast forward or reverse mode and resume playback at the desired title. The number of items to be skipped is shown in the 4-digit display (PC1 to PC15). If you have exceeded the desired number of items for skipping, reset the counter one by one by pressing »**pause**« repeatedly.

If you press »**pause**« before pressing » ▶▶ « or » ◀◀ « the tape will move to the appropriate index and remain in »pause« mode.

Press »**finder**« again to deactivate the function.

Playback with repeats

Repeating a complete cassette side
If you press »**repeat**« during playback, the deck will automatically rewind at the end of the cassette and start playback again. The selected side will be repeated until you deactivate the repeat function by pressing »**repeat**« again. Playback can be interrupted by pressing »**stop**«.

Repeating part of a recording
If you want to **repeat a cassette from a particular point**, reset the counter to zero at this point by pressing
- »**reset**« and press
- »**memo**« and
- »**repeat**« to activate this mode.
  After pressing
- »**start** ▶« the cassette will repeat from this point to the end of the tape until you interrupt the repeat function by pressing »**stop**« or you deactivate the repeat function by pressing »**repeat**«.

If you want to **repeat the cassette up to a particular point**, reset the counter to zero at this point by pressing
- »**reset**« and press
- »**memo**« and
- »**repeat**« to activate this mode.
  After rewinding to the start of tape and pressing
- »**start** ▶« the cassette will repeat from the start up to tape counter setting »0« until you interrupt the repeat function by pressing »**stop**« or you deactivate the repeat function by pressing »**repeat**«.

If you want to **repeat any section of a cassette** set the tape counter to zero at the beginning of the section by pressing
- »**reset**« and press
- »**memo**« and
- »**repeat**« to activate this mode.

At the end of the desired section, which you will reach by pressing
- »**start** ▶« or » ▶▶ « store the end by pressing
- »**set**« and press
- » ◀◀ « for fast reverse. After pressing
- »**start** ▶«, the section will repeat until you interrupt the repeat function by pressing »**stop**« or deactivate the repeat function by pressing »**repeat**«.

All sections to be repeated must be longer than 8 seconds.

Recording

To ensure even tape tension it is advisable to rewind new cassettes completely before recording: use fast forward » ▶▶ « followed by fast reverse » ◀◀ «.

Where cassettes vary significantly from the standard tape types, set the calibration on the C4. See the section »tape calibration on page 14.

Advance cassette to start of tape
Every cassette has a »leader« at both ends (usually transparent) which cannot be played. To ensure that the start of a musical item is recorded, the cassette must be advanced to the start of the actual tape. Press »**start** ▶« until you can see that the leader is fully wound on the appropriate reel, then press »**stop**«. Use »**reset**« to return the tape counter to zero.

Preparing the deck for recording
After the »**record**« button has been pressed the cassette deck is ready to record. The red »record« LED and green »pause« LED are lit, and word display shows »HX Pro« and other settings. The »start ▶« LED blinks. Set the recording level, and press »**start** ▶« to begin recording.

Setting recording level
The correct recording level is decisive in obtaining a recording which is free from distortion and noise. The level must be set before starting recording, since major adjustments during the recording will be clearly audible during playback as fluctuations in volume. If slight adjustments are needed during recording the »**—record level+**« control should be slowly set.
For recordings from broadcasts, records, CD's or another cassette the recording level should be set by the »**—record level+**« rocker bar while the »**line**« level control is set to maximum (mark on knob points to dot on front panel) so that only the green LEDs in the level indicators normally light up. During transient loud passages up to two red LEDs may also light up temporarily.

The different dynamic ranges of the various tape types are automatically taken into account when the cassette is inserted. Channel unbalance in programmes to be recorded can be corrected on the balance control by pressing the »**left balance**« and »**right balance**« buttons.
Ensure that the »**micro**« level control is turned completely down (mark on knob points to dot on front panel) if the connected microphones are not in use.

Starting recording
Actual recording starts when tape movement is initiated by pressing »**start** ▶«. The LEDs »start ▶« and »record« light up. The tape counter starts incrementing and the remaining playing time on the cassette is calculated and shown on the display with »r.time«. You can press »**select**« to toggle between the elapsed playing time and remaining playing time in the display.

Pressing »**select**« for more than 3 seconds displays the selected playing time for the cassette (C60, C90 or LC46). The display remains for 3 seconds, during which time the setting can be changed by pressing »**select**«.

To interrupt recording briefly press »**pause**«. The deck will remain ready to record. The LEDs »record« and »pause« remain lit, the LED »start ▶« blinks. Press »**start** ▶« to resume recording.

autospace - »a.space«
Using the »**a.space**« button you can set spaces between the individual musical items during recording. These spaces enable speedy location of specific items during playback search mode. At the end of a musical item press the »**a.space**« key to generate a space ca. 3 seconds long on the tape. The unit then automatically switches to the »record« »pause« mode. Press »**start** ▶« to initiate recording of the next musical item.

Stopping recording
Recording stops when the »**stop**« button is pressed or the end of the tape is reached and the deck automatically switches to »stop«.

NB: Remove the cassette only when the C4 is in »stop« mode and the »stop« LED is lit.

After recording, the contents of the cassette, the noise reduction system used and any tape calibration made (e.g. CL +3 and Cb +2) should be noted on the label.

Record protect on cassettes
»Record protect« tabs are provided for each side of the cassette on the rear (to locate the tab for a specific side, hold the cassette with the label for that side upwards and the tape towards you: the tab is on the left). To prevent accidental erasure of recordings, break off the tab. The resulting gap is detected by a sensor on the deck which prevents recording on that side. If you want to record on a protected cassette, simply cover the gap with adhesive tape.

Notes for recording

Recording from FM band
The C4 is equipped with a multiplex filter, activated by pressing the »mpx« button. This reduces the residual components of the pilot and subcarrier which are inadequately suppressed in the tuner and which are audible in playback as tweeting. Since the mpx filter cuts off the frequency range it should not be used with atelier tuners or receivers, since they adequately suppress the frequencies which cause this interference.

Recording selected broadcast items
If you want to record selected broadcast items only, insert a space after each musical item recorded by pressing the **»a.space«** button and at the end of the announcement
- **»start ▸ «.**

If you do not want to record the next item, press:
- **»stop«**
- **»finder«**
- **»start ▸ «** and
- **» ◂◂ «** to return to the space you have just inserted. The deck will rewind to the space before the item being broadcast and stop the tape. By pressing
- **»record«** you can prepare the deck for further recording. After the unwanted item has finished, press
- **»start ▸ «** to resume recording.

Recording from records, CD's or tapes
Before recording, it is helpful to locate the loudest passages and set recording levels in the »record« »pause« mode. **»a.space«** can be used to set spaces even during copying; these spaces will make it easier to locate individual items (with »finder«).

Monitoring
Thanks to its three-head design, the C4 allows you to monitor the tape during recording through a playback head located closely behind the recording head. When ready to record (»record« »pause«) the deck automatically switches to source (»source« is displayed), switching to »tape« (»tape« is displayed) during recording. Using the **»monitor«** button you can toggle between »source« and »tape«, enabling you to easily check the recording quality during the recording itself. If your control unit is equipped with a »tape« monitor switch, you can also play the tape signal - for example while recording radio broadcasts - through your HiFi system loudspeakers.

Microphone recordings
The **»left micro«** (20) and **»micro right«** (20) jacks are for connecting a low resistance stereo microphone with nominal impedance of 200-1000 ohms. For particularly good quality recordings, use of a high quality electret condenser microphone is recommended. Connect the left microphone channel with the left jack and the right microphone channel with the right jack.

Two mono microphones with equal rating can be used instead of a stereo microphone. For mono recordings a mono microphone (200-1000 ohms) can be connected to the left jack **»mono/left micro«**. The mono signal is automatically recorded on both stereo tracks (in the same direction) on the cassette.

It is advisable to check the recording level before the actual recording, by means of a trial record level setting or recording. With the **»micro«** level control set to maximum, you change the level by adjusting **» — record level +**. The **»line«** level control should be turned completely down if the line input should not be blended in. Use headphones to monitor the recording and turn down the playback volume of your HiFi equipment to »0« to prevent acoustic feedback.

Mixing recording sources
By mixing the levels **»micro«** and **»line«**, announcements and commentaries can be blended in during a recording. The **record level +** should be set to maximum to ensure the full dynamic range of the mixing amplifier. The mixing ratio can be set on the two level controls and monitored through the headphones. For setting the overall recording level the **» — record level +«** rocker bar should be used.

Additional functions

Recording and playback using timer
To record a broadcast automatically (while you are out) or switch on playback automatically, connect the C4 to the mains through a timer, e.g. through the secondary outlet of an R4 receiver with integrated timer. This automatically switches the tuner and amplifier on and off. Before making a timer recording it is essential to make a test recording on the relevant station, including setting recording levels. (The setting must not be changed until after the timer recording.) Next, move the **»timer«** switch to the »record« position. Follow the same procedure for timer playback, making a test playback to set the volume (on the amplifier), and then moving the **»timer«** switch to the »play« position.

Do not switch off the »power« switch on the C4 after setting up for timer recording or playback.

The C4 and tuner or amplifier must be switched off via the timer and are then ready for automatic switch on and off.

Tape calibration
If the characteristics of a tape differ seriously from the standard, you can set the record amplifier for each of the three types so that optimal playback is achieved. The settings are stored as an alternative to the standard settings and can be selected (LED »cal« lit) and turned off in »record« »pause« mode by pressing **»cal«**.

Proceed as follows:
- Press **»cal«** and **»start ▸ «** simultaneously to select calibration mode. The deck starts, and the »start ▸ « LED lights up, »cal« blinks, and »CL 0« is displayed in the four-digit display
- use **» + «** or **» — «** (level) to set the left band level indicator to 0
- switch over using **»level/bias«**; displays: LED »start ▸ «, »cal« blinks, »Cb 0« is displayed in the four-digit display
- use the **» + «** or **» — «** (bias) to set the right-hand level indicator to 0
- use **» ◂◂ «** to leave the setting mode, store the settings and rewind to the point where you started setting.

Maintenance, initialization

The C4 cassette deck does not need regular maintenance. After extended use, however, deposits form on the tape heads, the capstan shaft and the pinch roller. These deposits adversely affect the quality of recording and playback and must therefore be periodically removed. It is advisable to clean all components which come into contact with the tape with a cotton swab dipped in methylated spirits or alcohol.

NB: Never touch heads and drive components with hard objects which could scratch them.

If the unit is turned off or disconnected from the mains for a long period of time and after power on functions are displayed which do not normally appear together e.g. »Dolby nr B« and »Dolby nr C«, press
- **»reset«** and **»cal«** simultaneously.

If no key input is possible, turn off the unit and turn it on again after several seconds.

Equipment and special features

Stereo 3-head cassette deck with separate recording and playback systems for compact cassettes as per DIN 45 416 (LC46 to C90), amorphous R/P heads, microprocessor controlled 2-motor mechanism with quartz controlled single capstan drive and constant back tension. Cassette compartment and mechanism located in a motor driven drawer. Automatic tape selection. Dolby noise reduction system B and C, also during monitoring. Dolby HX Pro system. 3-digit electronic tape counter with memory and repeat functions. 4-digit display for remaining and elapsed playing time. Automatic tape end stop. Tape and tape head illumination. Autospace and index-»finder« search functions. Electronic record level control and independent mixing of microphone and line by rotary control. Headphone output with level control. Tape characteristic and frequency corrected peak level display with LED's. All momentary contact buttons are monitored via LED indicators. Timer record and playback operations are possible with external timer. Cable operated remote control of the mechanism function by a control unit equipped with an IR remote control receiver and a code converter.

Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
»Dolby«, the double-D symbol and »HX Pro« are trademarks of Dolby Laboratories Licensing Corporation.

Specifications (Specifications are based on C 60 compact cassette (IEC))

Electromechanic specifications

Tape speed		4,75 cm/s
Speed accuracy		< 0,2 %
Wow and flutter		
playback only:	WRMS	0,035 %
record/playback	DIN weighted	0,09 %
	unweighted	0,22 %
Fast winding time		< 75 s
Tape end stop system		< 2 s
Tape counter overrunning »memory stop«		< 1,0 digit

Electroacoustic specifications

Frequency response overall (without/with Dolby, without mpx filter)		
tape I		20 ... 18000 Hz
tape II		20 ... 19000 Hz
tape IV		20 ... 20000 Hz
Channel difference right/left channel		< 1 dB
Crosstalk		
right/left channel	- 1 kHz	> 45 dB
adjacent	- 1 kHz	> 70 dB
Signal to noise ratio unweighted		
without Dolby NR:	tape I/II/IV	54/56/58 dB
with Dolby NR B:	tape I/II/IV	60/60/62 dB
with Dolby NR C:	tape I/II/IV	63/63/65 dB
Signal to noise ratio weighted		
without Dolby NR:	tape I/II/IV	57/59/60 dB
with Dolby NR B:	tape I/II/IV	66/67/68 dB
with Dolby NR C:	tape I/II/IV	74/76/76 dB
MML/MOL		
tape I/II/IV		8/6/4 dB
Inputs, voltage/impedance		
line (2 Cinch jacks)		100 mV/47 kOhm
micro (2 jacks ¼")		0,3 mV/3 kOhm
Overload capability		> 35 dB
Outputs, voltage/impedance		
line (2 Cinch jacks)		
(315 Hz, K_3 = 3%)	tape I/II/IV	0,75/0,75/0,85 V/4 kOhm
headphone (jack ¼")		
(315 Hz, 250 nWb/m)		> 6 V/100 ohm
Recording level display		
rise time		< 10 ms
fall time		> 1 s
Bias and erase frequency		105 kHz
Erase efficiency		> 65 dB
Mains voltage		220 volts (50; 60 Hz)
(prepared for internal converting to)		110 V, 120 V and 240 V
max. power consumption		45 W
Dimensions (w x h x d)		445 x 70 x 360 (375) mm
Weight		8,9 kg
Executions		black/cristal grey